

ABSTRACT

High frequency laser diode (LD) and electro-absorption modulator (EAM) integrated circuit drivers using a cascoded output switch architecture that increases the output current and voltage edge speed and reduces the peaking and ringing of the output waveform, thus improving the deterministic jitter performance. Also disclosed is a method and apparatus that provides a modulation current dependence of both turn-on and turn-off driving currents that lead to an optimal compromise between the edge speed and output overshoot for a wide range of modulation currents. A PTAT temperature dependence of both voltage swing and current level in the predriver assures a low variation of the overshoot and rise/fall time over a wide temperature range. Using the cascoded output switch architecture provides an easy way of on-chip summation of the modulation and bias currents. Biasing the cascode device with a supply and modulation current dependent base voltage provides an optimum headroom output switch.